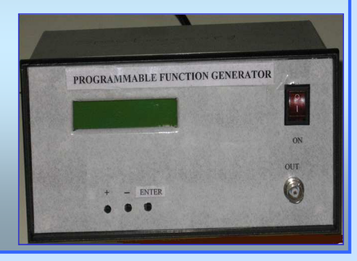
In-house Development of Programmable Function Generator

Narendra Patel, Chhaya Chavda, P. K. Chattopadhyay

Institute for Plasma Research



Abstract

Aditya data acquisition and control uses CAMAC and PXI based digitizer modules for data acquisition. Normally function generator with different functions, amplitude and frequency are used as test equipment to test digitizer.

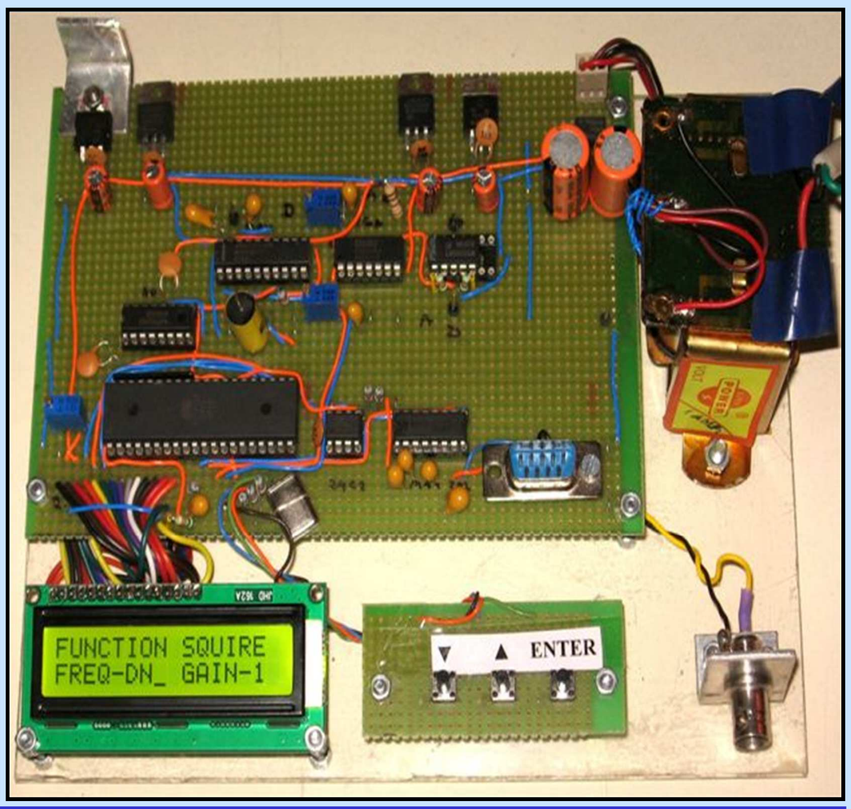
Commercially available function generator have many functionalities and programming which do not have its optimized used for such regular maintenance.

Considering the requirement, functionality, cost and size a stand alone Programmable function generator with serial interfacing is developed in-house for such use.

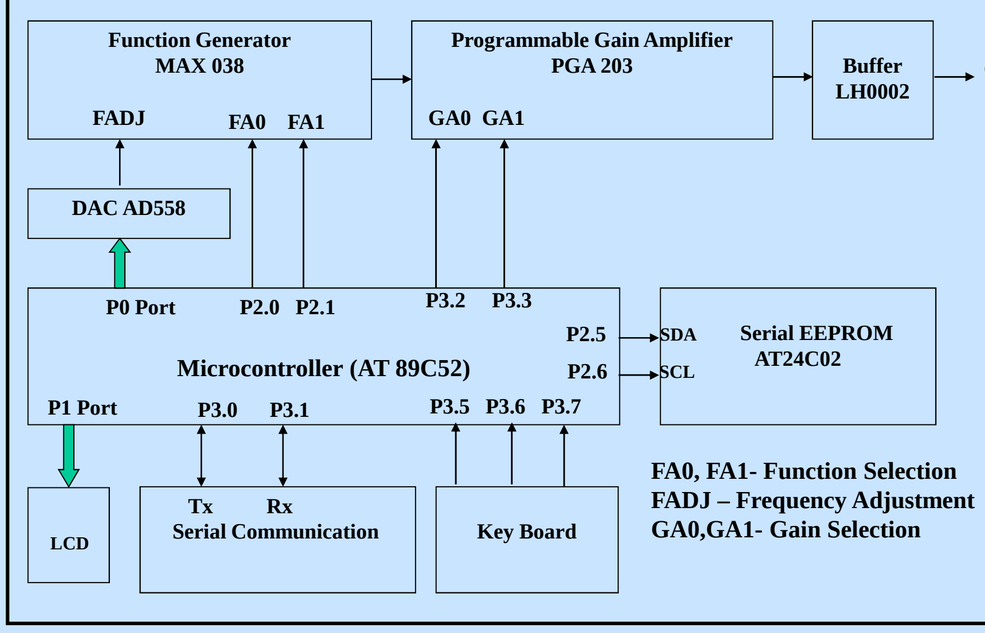
Features

1. Selection of functions Triangle, Sawtooth, Sine and Square Waveforms
2. Selection of Frequency from 0.1Hz to 20MHz and duty cycle from 15% to 85%
3. Selection of Gain from 1,2,4 or 8
4. 16 x 2 LCD display and 3 keys keypad for selection of function, frequency, gain and duty cycle
5. System has Serial interfacing with PC, LabView GUI for programming
6. Output on BNC with Low output Impedance of 3W
7. Inbuilt regulated power supply
8. Customize, Low cost and User friendly

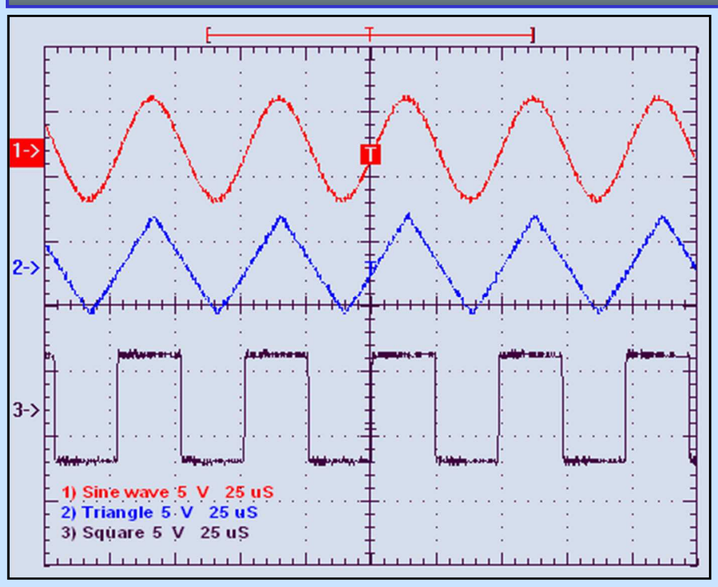
Actual System



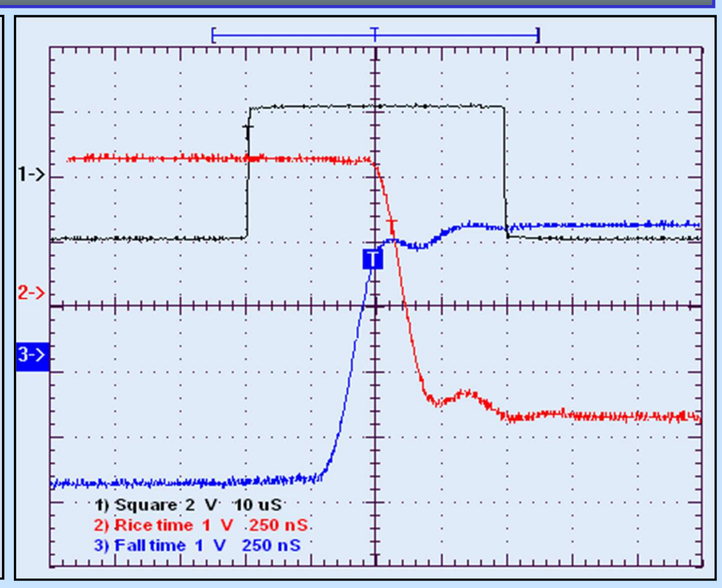
System Block Diagram



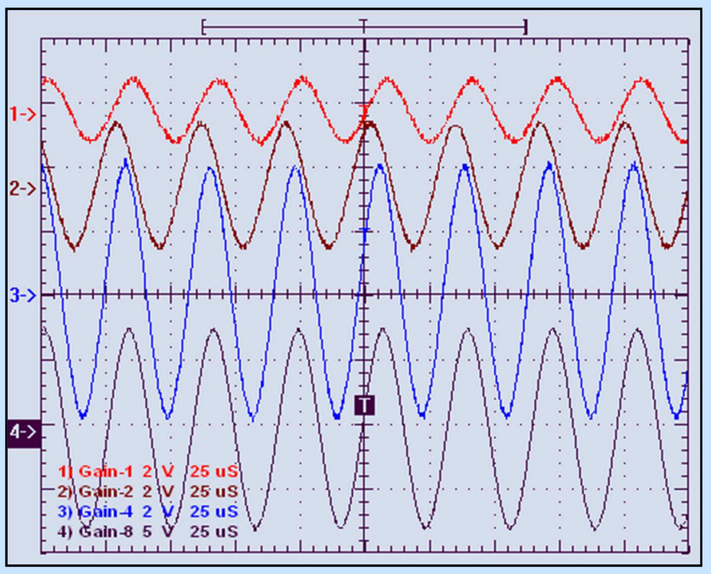
Test Results



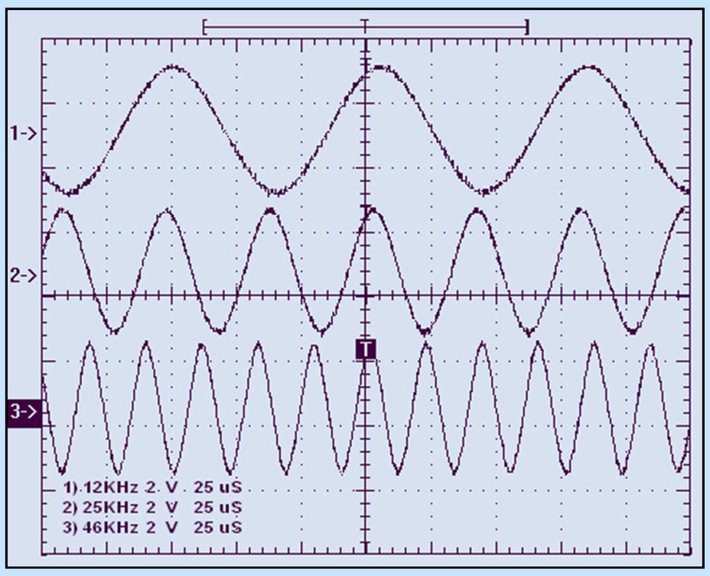
Function



Rise / Fall time

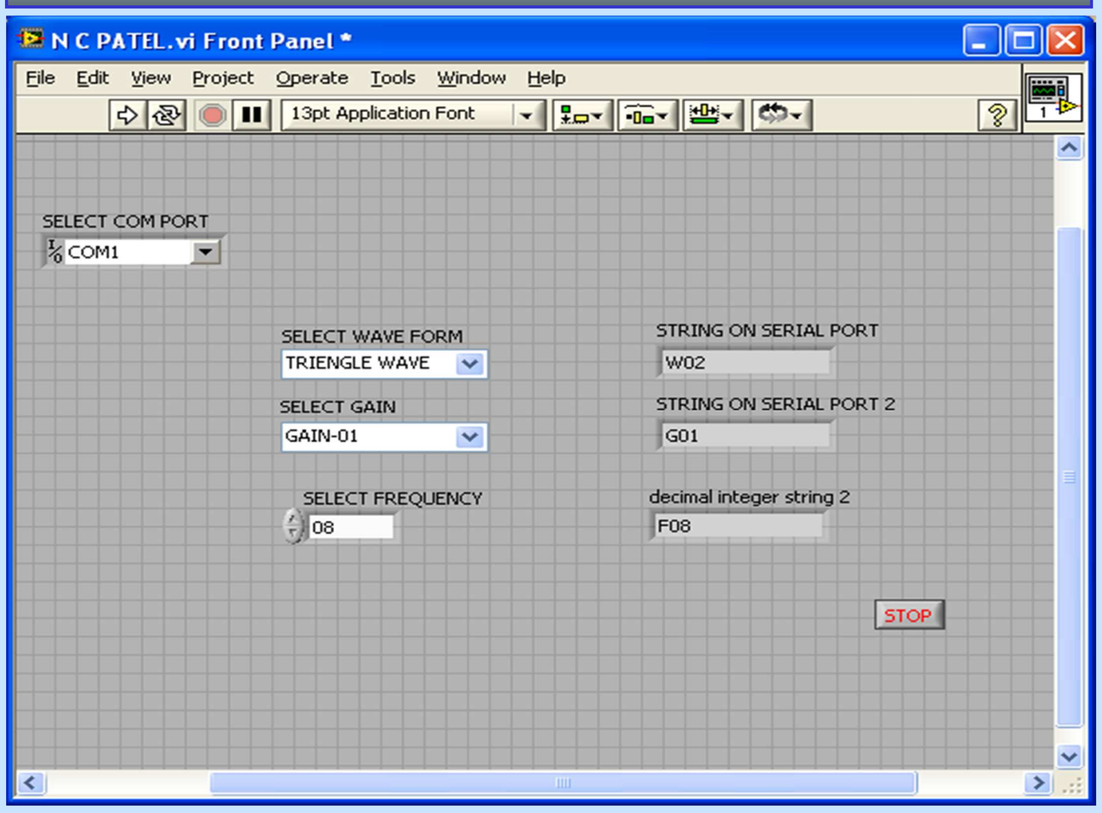


Gain



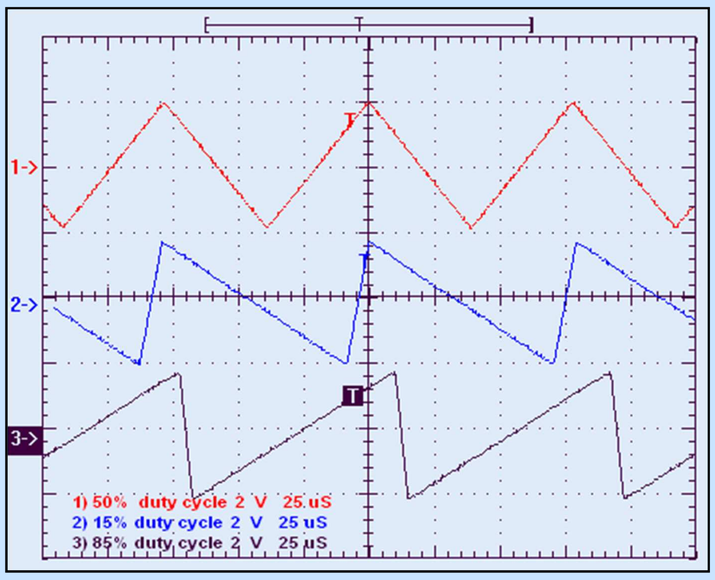
Frequency

LabVIEW GUI for selection using serial communication



Application

The system develop is very user friendly, low cost and can be customize as per requirement, it can be use for educational and research laboratory and industry.



Duty Cycle

Conclusion

In-house developed Programmable Function Generator is successfully tested as test set up for different CAMAC and PXI based Data Acquisition modules. The system need to be develop for External trigger, Burst and Gated mode. After prototype testing the system can be develop as product.

e-mail: ncpatel@ipr.res.in